REMARKS

Reconsideration of this application, based on this amendment and these following remarks, is respectfully requested.

Claims 1, 3 through 8, 10, 15, 16, 19 through 22, and 43 through 48 remain now in this case. Claims 1, 15, and 22 are amended.

Claim 15 is amended to correct a minor error of a typographical nature, specifically by reciting its dependency on claim 22. No new matter is presented by this amendment to claim 15.

Claims 1, 3 through 6, 8 through 10, and 43 through 45 were finally rejected under §102 as anticipated by the Achiwa et al. reference[1]. The Examiner equated the erasable physical blocks of the reference with the erase units of the claim, and asserted that each physical block of the reference includes a plurality of programmable memory cells, apparently equating the memory cells with the programming units of the claim.[2] In response to Appellants' arguments in the Request for Reconsideration Under Rule 116 filed September 12, 2006, the Examiner clarified his interpretation, stating that the plurality of memory cells in each physical block correspond to the plurality of programming units in each physical block.[3] Given this interpretation of the Achiwa et al. reference, among other assertions, the Examiner asserted that each of the recited method steps of claim 1 were met.[4]

The limitations of the dependent claims (other than claim 7) were also found to be met by the Achiwa et al. reference, again based on the same interpretation of the reference as meeting the erase unit, programming units, and groups of programming units, as applied against claim 1.[5]

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[1] U.S. Patent No. 5,737,742, issued April 7, 1998 to Achiwa et al.

[2] Office Action of June 12, 2006, page 3, *citing* Achiwa et al., *supra,* Abstract and Figure 2.

[3] Advisory Action of October 19, 2006.

[4] Office Action, *supra,* pages 3 through 5, *citing* Achiwa et al., *supra,* with reference to Figures 2, 9A, 9B, 10A, 10B, and 11 through 17.

[5] Office Action, *supra,* pages 5 through 7.

Claim 7 was rejected under §103 as unpatentable over the Achiwa et al. reference in view of the Kramer reference.[6]

Claim 1 is amended to advance the prosecution of this case by clarifying its distinction over the Achiwa et al. reference. Amended claim 1 now recites that each of the programming units in each erase unit comprises a plurality of non-volatile memory cells.[7] No new matter is presented by this amendment to claim 1, given its clear support in the specification.

Applicants submit that this amendment to claim 1 clarifies its novelty and inventiveness over the Achiwa et al. reference, because the claim now expressly prevents the Achiwa et al. reference from being applied against the claims in the manner asserted by the Examiner. One cannot now consider the memory cells of the Achiwa et al. reference as the programming units of claim 1, because claim 1 now requires that each programming unit comprise a plurality of memory cells. Applicants further submit that the Achiwa et al. reference falls short of the requirements of claim 1, because the reference nowhere discloses nor suggests the step of grouping programming units within an erase unit into a plurality of groups of programming units, where each of the programming units themselves comprise a plurality of non-volatile memory cells. Rather, the Achiwa et al. reference merely teaches the arrangement of blocks of memory cells, and block level operations within its non-volatile memory. In fact, the reference lacks any teaching regarding the organization of memory cells within a physical block, and therefore necessarily fails to disclose the grouping of programming units into a plurality of groups within a physical block, as would result from the grouping step of amended claim 1. And therefore, Applicants submit that the Achiwa et al. reference necessarily fails to meet any of the writing steps also required by amended claim 1, because of its failure to disclose the recited grouping step.

For this reason, Applicants submit that amended claim 1 and its dependent claims are novel over the Achiwa et al. reference.

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[6] U.S. Patent No. 6,182,239 B1, issued January 30, 2001 to Kramer.

[7] *See* specification of S.N. 10/679,008, *as published as* U.S. Patent Application Publication No. US 2004/0103241 A1, paragraphs [0040] and [0041].

Nor does the Kramer reference, nor any of the other prior art of record in this case, provide such teachings. Accordingly, Applicants submit that the combined teachings of the prior art fall short of amended claim 1 and its dependent claims. And because the method of claim 1 provides the important advantages of enabling efficient out-of-sequence write operations within a given physical block (erase unit), even in a flash memory of a type (*e.g.,* NAND memory) in which out-of-sequence write operations are prohibited,[8] and considering that these advantages stem directly from the difference between the claims and the prior art, Applicants submit that amended claim 1 and its dependent claims are not only novel, but patentably distinct over the prior art of record in this case.

Independent claim 22 and its dependent claims 15, 16, 19 through 21, and 46 through 48 were also finally rejected under §102 as anticipated by the Achiwa et al. reference, on the same grounds as discussed above relative to claim 1[9]. Claim 21 was rejected under §103 on similar grounds as claim 7.

To advance the prosecution of this case, claim 22 is similarly amended as claim 1, to now also require that each of the plurality of programming units within each erase unit comprises a plurality of non-volatile memory cells. Given the support in the specification for this amendment, no new matter is presented.

Applicants also submit, similarly as discussed above relative to claim 1, that this amendment to claim 22 clarifies its novelty and that of its dependent claims over the Achiwa et al. reference. The amendment to claim 22 expressly overcomes the previous rejection, because one can no longer consider the memory cells of the Achiwa et al. reference as the programming units of claim 2, because claim 22 now requires that each programming unit comprise a plurality of memory cells. Applicants further submit that the Achiwa et al. reference falls short of the requirements of claim 22, because the reference nowhere discloses nor suggests a non-volatile memory having a plurality of erase units, where each erase unit comprises a plurality of programming units that each comprise a plurality of non-volatile memory cells, in combination with means for controlling the writing of contents into the memory according to groups of programming units within an erase unit that are arranged in sequence, as claimed. Rather, the Achiwa et al. reference merely teaches that its memory is arranged as blocks of memory cells. Nowhere does the reference even mention the organization of memory cells within a physical block. As a result, the reference necessarily fails to disclose groups of programming units within an erase unit of a non-volatile memory, as required in the system of amended claim 22. Applicants submit that the Achiwa et al. reference therefore necessarily fails to meet the element of the controlling means of claim 22, because of lacks any teachings regarding that grouping.

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[8] Specification, *supra,* paragraph [0050].

[9] Office Action, *supra*; Advisory Action, *supra.*

For this reason, Applicants submit that amended claim 22 and its dependent claims are novel over the Achiwa et al. reference.

The Kramer reference, asserted against claim 21, as well as the other prior art of record in this case, also fail to provide such teachings. Accordingly, Applicants submit that the combined teachings of the prior art fall short of amended claim 22 and its dependent claims. The system of amended claim 22 provides similar advantages in enabling efficient out-of-sequence write operations within a physical block (erase unit) as claim 1, discussed above. Because these advantages are the direct result of the difference between the claims and the prior art, Applicants submit that amended claim 22 and its dependent claims are patentably distinct over the prior art of record in this case.

For these reasons, Applicants respectfully submit that the claims now in this case are in condition for allowance. Entry of this amendment in this application, and favorable consideration of this application in its continued examination, are therefore respectfully requested.

Respectfully submitted,

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